

## **Trends in Retail Centres Recycling Initiatives**

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**(Paper presented at the International Conference on Facilities Management held on 13-15 September 2010 in Sao Paulo, Brazil)**

Perpustakaan Universiti Malaya



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## 1. Research background

**Trends in Retail Centres Recycling Initiatives****Mohamad R Baharum**

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## 2. Integrated waste management: resource recovery system

**Abstract**

The paper intended to examine recycling initiatives of a group of UK retail centre in regards to the waste production and recycling initiatives over periods of two years. Method adopted in the study is the collection of primary data obtained from individual shopping centres throughout UK. Review of nine shopping centres merely represents the recycling trends of UK shopping centres, as few shopping centers have only just started their recycling programs. Findings of the study revealed that the sector did show an overall decreasing level of waste production, and waste minimisations were achieved through a variety of recycling initiatives. As a result, the more proficient approach to recycling, the better was the results. The paper also shows that shopping centre recycling does produce positive results. Although the effect of the landfill tax is uncertain but additional incentives and facilities management discipline to shopping centre recycling may be essential to drive the sector wide improvement.

**Keywords:** Waste management, Recycling, Shopping centres, United Kingdom



## 1. Research background

There is nothing new about recycling as an objective, but there are new and growing pressures on shopping centre business as property investment to act responsibly and comprehensively to manage their waste. Apparently, recycling has become a central component of many retail centres operations, and valued for the cost-savings associated with some programs as well as its general environment-friendly aspects. However, sustainability in retail shopping centre through recycling is ultimately a creative act that involves thought and dedication to extend the life and usefulness of retail centre waste stream. Although, most of previous research on waste minimisation through recycling relates to the municipals, commercial office building, medical, hotel, educational and industrial. This paper attempts to observe the UK retail centres sector waste production and recycling trends. Also, the present study extends the work by Fuller's (1994) and Pitt's (2005) studies concerned with retail shopping centres waste management which requires further investigation.

This paper starts with the theoretical discussion about shopping centre waste management and recycling. After this research directions by means of pilot studies are presented. The last part of this paper discusses about the results and gives FM implications to the shopping centre management.

## 2. Integrated waste management: resource recovery system

It is argued that a large waste assimilation capacity in the environment is outcome from the generation of waste begins from every production process (i.e. water, energy, materials) from supply-chain networks (Turner and Powell 1991; Phillips et al. 2001). Within the broader waste management strategy of resource recovery system, materials recycling can be differentiated from the other subsystems by the fact that it creates a marketable physical product that is essentially a substitute for virgin source raw materials in primary production processes. Therefore, recycling is distinguished as re-introduction of residual materials into production processes so that they may be re-formulated into new products (United Nations 2003). Those materials are refined back to essentially its virgin specification; or it may subsequently be used for any purpose appropriate to that material specification. By this means, recycling clearly demonstrates that the goal is to reverse this result by achieving a circular flow (as illustrated in figure 1) that effects a reintegration of materials with markets. Nevertheless, in order for recycling to be sustainable, there needs to be accessible markets for recycled materials at the end of the cycle.

Otherwise, materials reuse and incineration subsystems have as their respective objectives the development of returnable (reuse) systems (Korzum et al, 1990), composting and the reduction of waste by energy recovery. When these used together, materials recycling, reuse, composting, and incineration represent the major elements of an integrated solid waste management program (United Nations 2003; UNEP 2007). However, the least favorable alternative is the traditional approach to product disposition, which several authors described as a linear flow (Neace, 1990; Phillips et al. 2006), in which waste materials are interred in landfills or indiscriminately dumped.



Presently, waste management is appeared to view recycling-collection as a cost reducing alternative. Recycling also becomes a central component of many shopping centre operations. Fuller (1994) described the shopping centre occupies a position as “down-stream”, in product extended channel. This position places it at the point where bulk breaking associated with product assortments takes place. The measures to prevent waste generation and to re-incorporate waste in the economic cycle or “closing the materials loop”, i.e. recycling, are therefore an important element of a comprehensive approach to resource management (Fuller and Allen 1997). This proposition can be further illustrated in Figure 1, the circular flow which applies to waste generated at different levels in a hypothetical production consumption cycle overtime. Within this, marketing intermediaries also produce waste that follows this same routing, and that the overall effect of the diversion of materials through resource recovery is not only to converse resources but to eliminate additional, on-going pollution from unsecured landfilling. Thereby shopping centres has important roles that help to close the loop, thus, creating supply from the materials recovered.

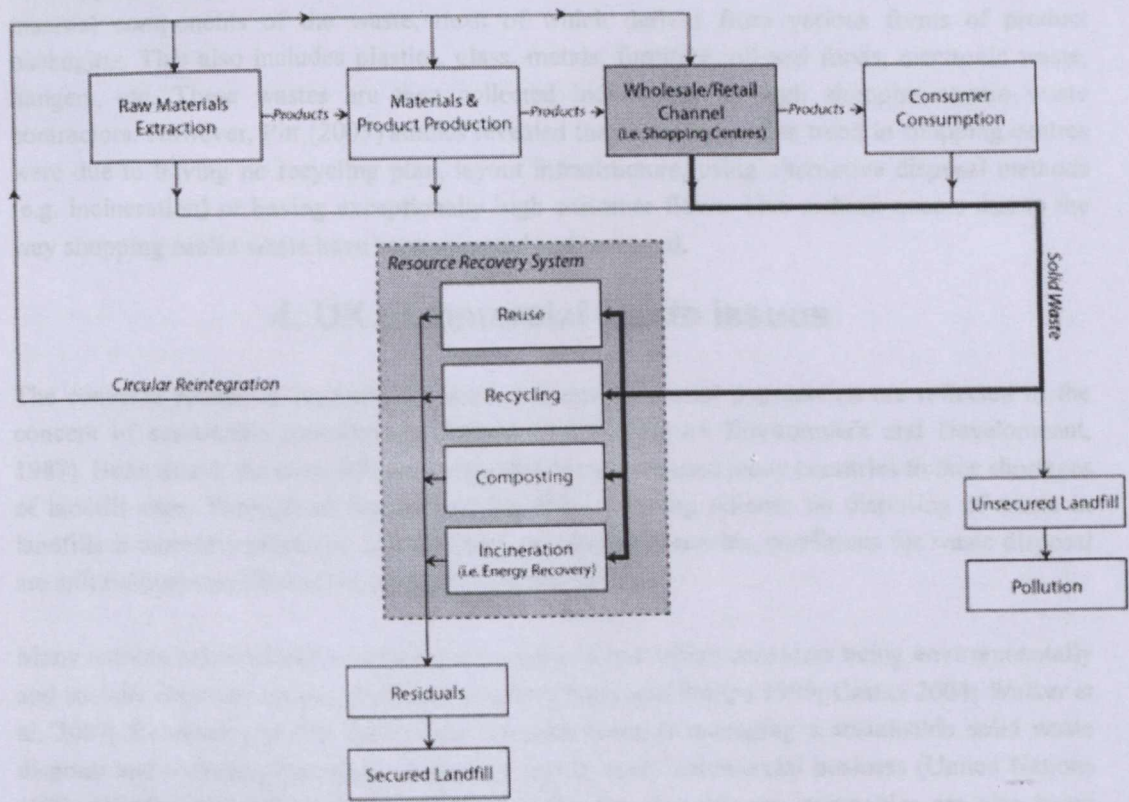


Figure 1: Shopping centre position in materials system life-cycle  
(Adapted from Fuller and Allen 1997)

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3. Shopping centre position in resource recovery systems

For that reason, shopping centre recycling is one of the basic subsystems of waste management (or resource recovery) that collects, processes, and return former waste materials to productive use. It is also perceived as a logical waste management strategy through which shopping centre management can achieve its waste reduction objectives. The collection of these waste places the shopping centre at the head of forward retailer or wholesaler within the product materials circular reintegration, and predictable solid waste streams composed of packaging materials are associated with the shopping centre operations. As a unique form of materials recycling, shopping centre recycling can be distinguished by the nature of the waste they generates and types of material sought.

Normally shopping centres produce much larger quantities of relatively homogeneous wastes which are by products of their operations. Corrugated cardboard is the largest amount produced in shopping centre waste stream, as a normal part of the business routine compared to other material components of the waste, most of which derives from various forms of product packaging. This also includes plastics, glass, metals, furniture, oil and foods, electronic waste, hangers, etc. These wastes are then collected individually through shopping centre waste contractors. However, Pitt (2005) studies revealed the increasing waste trend in shopping centres were due to having no recycling plan, layout infrastructure, using alternative disposal methods (e.g. incineration) or having exceptionally high customer flows. This setback occurs due to the way shopping centre waste have been operated and managed.

4. UK commercial waste issues

The concerns related to resource depletion and environmental degradation are reflected in the concept of sustainable development (World Commission on Environment and Development, 1987). Beforehand, the over reliance on landfill has also caused many countries to face shortages of landfill sites. Throughout Europe and the USA, a strong reliance on disposing of waste in landfills is currently practiced. Yet, in many developing countries, conditions for waste disposal are still rudimentary (World Resource Foundation 1997).

Many authors acknowledged sustainable business is one which considers being environmentally and socially aware to be good business practice (Bates and Philips 1999; Castka 2004; Walker et al. 2007; Baharum and Pitt 2009). The etiquette towards managing a sustainable solid waste disposal and recycling becomes a necessary part in every commercial business (United Nations 1992; DETR 1999; DETR 2000; DEFRA 2008). For that reasons, companies are also being asked to respond to the concept of social responsibility (Castka 2004; Idowu and Towler 2004; Walker et al. 2007; Baharum and Pitt 2009), hence, sustainability thorough recycling has emerged as central component in many business operations.

4.1 Waste from retail sector

Waste trends from various sectors in the UK have previously been explored DEFRA 2006; DEFRA 2007). According DEFRA, the overall UK waste sent at landfill sites registered for the



tax fell from around 96 million tonnes in 1997/98 to around 72 million tonnes in 2005/06, a reduction of around 25 per cent. This improvement further highlights the effects of the policies instrument which revealed some success. Although, the EU Environment Agency recognised the UK waste management trends is among the group with low recovery materials and incineration, with around 25 per cent recovery rates, alongside Portugal, Greece and Slovenia (European Environment Agency 2007). DEFRA (2007) also identified the UK commercial sector produces around 25 million tonnes of waste every year. Although approximately one-third of this waste is recycled, about half still goes to landfill. The individual sector that generated the most of the waste is retailing sector, which produced nearly 13 million tonnes of waste, with paper and corrugated cardboard account for 20 per cent, and over half of the waste being classified as general mixed commercial waste in its waste stream.

Despite the need for extraction of recyclables from this sector, it was also acknowledged that the sector has been slow to initiate waste reduction strategy. Pitt (2005) described the set back of retail centre waste in the UK was due to poor leadership, commitment from top management, awareness and waste management skills are some of the reasons why this sectors are slow to response. Besides, few scholars (Cant 2005; Musa and Pitt 2009) also emphasised the failure on the part of facilities management discipline to effectively involve in this sector of operations. In effects, poor procurement skills and efficient management of waste disposal and recycling solutions might add to a high cost of operation into the sector.

## 4.2 Legislation

UK waste management policy apparently originated from Environmental Protection Act 1990 and EU Waste Framework Directive in 1975. The revised waste directive (Directive 2008/98/EC) provides a good opportunity to create new European targets and processes to minimise waste and maximise recycling (European Commission 2008). The directive also lays down waste management principles such as the "polluter pays principle", and promotes Europeans a recycling society.

At the start, positive signs of recycling promotion in the UK started in 1987, initiated by the National Council for Voluntary Organisations, with a project called Waste Watch (Waste Online 2004). Managing waste in a sustainable way, optimising recycling, as well as limiting the generation of waste materials, forms a core part of UK government policy to protect the environment. The Environmental Protection (Duty of Care) Regulation 1991 also affects every business in the UK to responsibly produce or handles their waste. By this means, companies need to make sure their waste is collected and disposed of in accordance with the relevant legislation, instead of a linear "cradle to grave" model; companies now have a cyclical "cradle to cradle" model based approach.

The foremost policy instruments that influence UK commercial waste sector are the landfill tax, landfill tax credit scheme and landfill allowance trading scheme (DEFRA 2004). The combined effect of these policies are to reduce the use of landfill and put pressure on retailing sector the certainty of materials recovery and recycling options. For the meantime, a further landfill tax escalator of £8 per tonne each year taking the current UK landfill tax for active waste to £48 per



tonne, and will increase by £8 per tonne each year until April 2013 (HM Treasury 2010). For business, this relative change in costs could tip the balance between recycling and landfill disposal, making their recycling attempt the most cost effective option in their business. Unaware of the consequences of these issues, lack of proper waste management may costs companies heavily, not only in terms of monetary losses, but also in environmental impacts (Envirowise 1998; Phillips et al. 2006). The legislative framework on commercial waste embraces financial penalty as the key driver that drive companies to effectively manage their waste management in a sustainable way.

With this, shopping centre direction and scope for recycling strategy requires certain configuration of its resources in order to meet the area of focus, formalises the necessary organisational structures for successful implementation. To achieve recycling goals and promoting other means of waste reduction, therefore, requires a creative act and dedication to reverse shopping centre waste streams into meaningful resources. Without such a strategy, progress on recycling and waste minimisation will have to depend on its organisational experience and ingenuity.

## 5.0 Research directions

The difficulty to quantify commercial waste data is due to the fact that it is collected individually by businesses through waste contractors. This also causes lack of data transparency to enabling efficient monitoring of waste from commercial sector in the UK. Unlike municipal waste, local authorities are much in control to gather municipal waste data centrally to enable resourceful monitoring. It is also expressed (Pitt, 2005) that the lack of waste decision making in this sector probably due the fact that the nature of each industry or sector varies, hence, the suitability of each disposal method varies accordingly.

Thereby the aim of this pilot study was to identify waste production and recycling trends among the shopping centres across the UK. Although not all centres to fully participate as they were unable to provide a precise breakdown of their waste on quarterly or yearly basis incorporating with recycling initiatives. However, only 9 shopping centres, ranging between 21,816 square meters to 150,500 square meters of lease area, participated in this study. Thus far the series of data collated is acceptable to take on analytical work. Hence, wastes produced by these shopping centres over a period of 2 years (2008-2009) were examined.

### 5.1 Research findings

The data represents the average tonnage of waste produced by these centres for year 2008 is 0.020 tonnes per sqm, and 0.017 tonnes per sqm for the consecutive year. In 2008, six centres have their average weights for the two years below average tonnage while the rest are above average. Figure 2 illustrates that shopping centres C and H produce the highest amount of waste. The reason of for high production is not known. Although it is possible their results might be due to economy of scale; exceptionally high numbers of shoppers; as these two centres size are among the largest in the study. It is also believes that the declining waste production is somewhat



due to economic recession which sent retailers sales sliding in this period. However, waste production from three shopping centres (A, E and H) portrays small growth despite the recession.

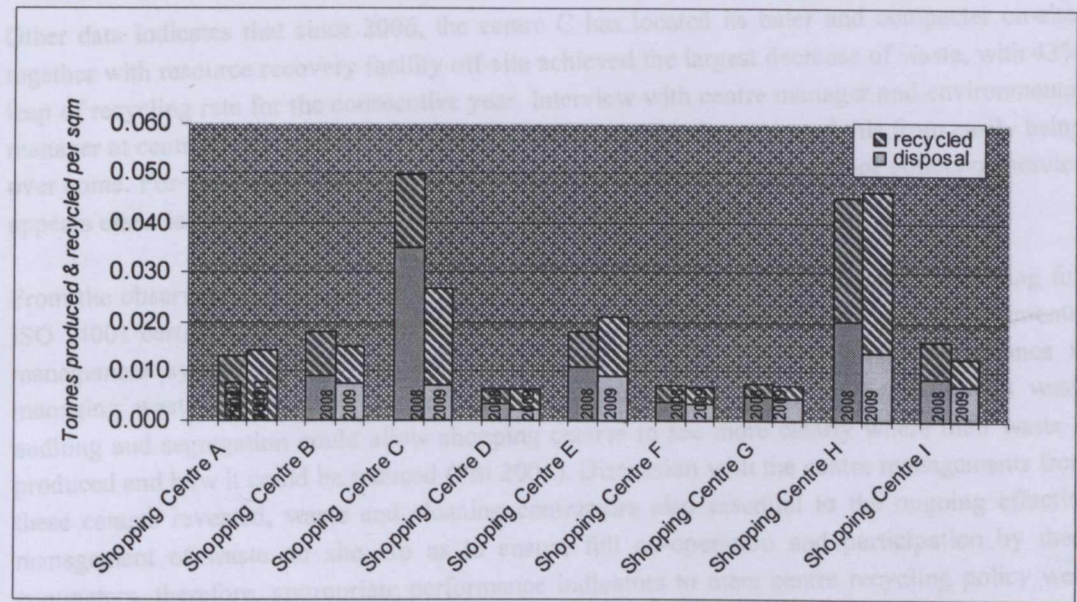


Figure 2: Waste (tonnes) produced and recycled per sqm (Year 2008-2009)

All shopping centres drawn in the study have their recycling strategy implemented with 2 to 10 years of experience. Presently, every individual centre in the study has baler and compactor facilities on-site to facilitate recycling for materials such corrugated cardboard, paper, glass, aluminium cans, wooden pallets, soft and hard plastics, etc. In addition, special management provisions to facilitate recyclable materials such fluorescent tubes, toner cartridges and electrical goods, hangers, are evident. Few have resource recovery facility and only one centre has incinerator for an alternative option to landfill. However, none of the centres in the study has initiated anaerobic digestion facility for food waste disposal.

From the figure, it can be seen that performances of the shopping centre recycling are consistent. Generally, all the centres' recycling performance quantitatively improved despite the increase of waste produced. The data presented shows the average tonnage of waste recycled by these centres for year 2008 was 0.010 tonnes per sqm, and marginal raise up to 0.011 tonnes per sqm for year 2009. It is revealed that shopping centres A, C and H have their recycling weights above average tonnage in both years. Recycling weights for shopping centre E also increased to 0.012 tonnes per sqm in year 2009. Even though centres F, G and I recycling rates decrease, waste minimisation was apparent.

Shopping centre A is the only centre equipped with baler, compactor, resource recovery facility and incinerator on-site, thereby facilitates 100% recycling of its waste stream throughout the two years observation. Rest of its residual is sent for energy recovery, as alternative to landfill. According to the centre management, some of the cost saving to landfill is reinvested in



additional recycling initiatives and some of it is passed on to retailers. However, community involvement and local investment in regional initiatives are imperative for the technological advancement to be in place.

Other data indicates that since 2006, the centre C has located its baler and compacter on-site, together with resource recovery facility off-site achieved the largest decrease of waste, with 43% leap of recycling rate for the consecutive year. Interview with centre manager and environmental manager at centre C revealed the space limitation has previously prevented this from easily being overcome. For that reason, initiative such provision of retailers' door-to-door collection service appears essential, and together providing privilege service to retailers.

From the observation, it is also acknowledged that shopping centre E is currently acquiring full ISO 14001 certification. Only shopping centres A, B, H and I have implemented environmental management systems as part of their focusing strategy. In this regard, the importance in managing waste data relative to performance indicators also been highlighted. Such waste auditing and segregation could allow shopping centres to see more clearly where their waste is produced and how it could be reduced (Pitt 2005). Discussion with the centre managements from these centres revealed, waste and cleaning contractors also essential to the ongoing effective management of waste on site. So as to ensure full co-operation and participation by these contractors, therefore, appropriate performance indicators to meet centre recycling policy were included in the service contracts.

In addition, retailers' staffs on sites can greatly reduce material contamination and increase material. Centre managements from centres D, F, G and H relate one obstacle to recycling was caused by retailers' pressure with staffing levels, therefore, not having buy in to centres recycling strategy. Although tenant lease has specified the voluntary measures and centre recycling requirements, further awareness raising; training and re-training programs for retailers staffs may play a part in focusing strategy.

With the analysis for two years, there are some trends and alternatives for procuring waste disposal and recycling services that currently in practice. Only few large shopping centres have invested in resource recovery facility to handle large quantity of waste they produced.

## 5.2 FM implications

Recycling initiatives among the 9 shopping centres that affect the development of retailing waste stream is presented. Indeed, such practices appear to be becoming increasingly mainstream. Somehow, the successes of the centres waste stream to be recycled are greatly dependent on facilities management at shopping centre establishment to innovatively procure their recycling services together with other relevant initiatives. Although the facilities management discipline in shopping centre is relatively infancy in the UK (Cant 2005; Musa and Pitt 2009), yet, the agility of facilities management knowledge to swiftly adapt with companies environmental criteria is expected (Baharum and Pitt, 2009). Certainly facilities management has important position to recover and recycle shopping centre waste at every opportunity in order to reduce the cost and amount of waste being sent to landfill.



## 6. Conclusions

Investigation from the primary data suggests that the UK shopping centres recycling trends are consistent throughout the two years analysis. Among the nine shopping centres participated in this study, it signifies that recycling improvements are being made visible at the current time despite minor decrease of waste produce in the consecutive year. However, such support from local investment in regional initiatives, the current economic conditions, technology advancements, taxation on alternative to landfill apparently have an effect on the existing trends. As a result, this pilot studies conclude that the sector did show an overall decreasing level of waste production, and waste minimisation were achieved. The study also revealed the primary influences on shopping centres recycling are to reduce waste management costs, compliance with legal requirements, corporate environmental conscience, and desire to reflect consumer's their values.

With regards to financial-economic constraints; the existing situation; regulation; and organisational; environment; and technical issues, shopping centre management need to consider appropriate options and organising and managing their waste stream in cost-effective way possible. Besides, facilities management from retail centre sector will have to accept the concept of recycling as basic to the maintenance of present and future business trends. Considering recycling is a strong business case for environmental sustainability, facilities managers should be proactive in matters relating to the environment, rather than reactive and responding only to government or regulatory pressure. In doing so, they would be demonstrating a credible, sincere long-term commitment to the environment.

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Salam Cik Noorsuzila Mohamad,

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Segala kerjasama dan perhatian pihak cik amatlah dihargai. Terima kasih dan harap maklum.

Yang benar,

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